Appl. No. 10/728,442
Amdt. dated October 31, 2005
Amendment under 37 CFR 1.116 Expedited Procedure
Examining Group 1743

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Amendments to the Claims:

Please amend claim 64. This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1-31 (canceled)

32 (previously presented): A mass spectrometry probe comprising:

(a)   a sample presenting surface, wherein the sample presenting surface is a surface of the probe;

(b)   energy absorbing molecules immobilized by chemical bonding to the sample presenting surface; and

(c)   an affinity reagent immobilized by chemical bonding to the sample presenting surface, wherein the energy absorbing molecules are different from the affinity reagent.

33 (previously presented): The probe of claim 32, wherein the sample presenting surface does not have additional matrix molecules.

34 (previously presented): The probe of claim 32, wherein the probe comprises metal.

35 (previously presented): The probe of claim 32, wherein the energy absorbing molecules are covalently bound to the sample presenting surface.

36 (previously presented): The probe of claim 32, wherein the energy absorbing molecules and affinity reagent are arranged on the sample presenting surface in a predetermined array.

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1   37 (previously presented): The probe of claim 32, wherein the energy absorbing

2   molecules are selected from the group consisting of dimethoxy hydroxycinnamic acid,

3   cinnamamide, cinnamyl bromide, dihydroxybenzoic acid, and cyanohydroxycinnamic acid.

1   38. (previously presented): The probe of claim 32, wherein the affinity reagent is

2   covalently bound to the sample presenting surface.

1   39. (previously presented): The probe of claim 32, wherein the affinity reagent is

2   selected from the group consisting of a metal ion, a protein, a peptide, a nucleic acid and a dye.

1   40. (previously presented): The probe of claim 39, wherein the affinity reagent

2   comprises a metal ion.

1   41. (previously presented): The probe of claim 40, wherein the metal ion is

2   selected from copper or iron.

1   42. (previously presented): The probe of claim 39, wherein the affinity reagent

2   comprises a protein or peptide.

1   43 (previously presented): The probe of claim 42, wherein the protein or peptide

2   is an immunoglobulin.

1   44 (previously presented): The probe of claim 39, wherein the affinity reagent

2   comprises a nucleic acid.

1   45 (previously presented): The probe of claim 44, wherein the nucleic acid is

2   DNA.

1   46 (previously presented): The probe of claim 32, wherein the analyte comprises

2   a protein.

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1   47 (previously presented): The probe of claim 32, wherein the analyte comprises
2   a nucleic acid.

1   48 (previously presented): The probe of claim 32, wherein the analyte is bound
2   to the affinity reagent.

1   49 (previously presented): A method for detecting an analyte comprising:
2   (a)   capturing an analyte on a sample presenting surface of a mass
3   spectrometry probe, wherein the sample presenting surface is a surface of
4   the probe, wherein the probe comprises (i) energy absorbing molecules
5   immobilized by chemical bonding to the sample presenting surface, (ii) an
6   affinity reagent immobilized by chemical bonding to the sample
7   presenting surface, wherein the energy absorbing molecules are different
8   from the affinity reagent, wherein the analyte is not dispersed in a matrix
9   crystalline structure, but is presented within, on or above the energy
10   absorbing molecules; and
11   (b)   detecting the captured analyte by laser desorption/ionization mass
12   spectrometry.

1   50 (previously presented): The method of claim 49, wherein additional matrix
2   molecules are not added.

1   51 (previously presented): The method of claim 49, wherein the energy
2   absorbing molecules are covalently bound to the sample presenting surface.

1   52 (previously presented): The method of claim 49, wherein the energy
2   absorbing molecules and affinity reagent are arranged on the sample presenting surface in a
3   predetermined array.

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1   53 (previously presented): The method claim 49, wherein the energy absorbing

2   molecules are selected from the group consisting of dimethoxy hydroxycinnamic acid,

3   cinnamamide, cinnamyl bromide, dihydroxybenzoic acid, and cyanohydroxycinnamic acid.

1   54. (previously presented): The method of claim 49, wherein the affinity reagent

2   is covalently bound to the sample presenting surface.

1   55. (previously presented): The method of claim 49, wherein the affinity reagent

2   is selected from the group consisting of a metal ion, a protein, a peptide, a nucleic acid and a dye.

1   56. (previously presented): The method of claim 55, wherein the affinity reagent

2   comprises a metal ion selected from copper or iron.

1   57. (previously presented): The method of claim 55, wherein the affinity reagent

2   comprises an immunoglobulin.

1   58 (previously presented): The method of claim 55, wherein the affinity reagent

2   comprises DNA.

1   59 (previously presented): The method of claim 49, wherein the sample is

2   selected from the group consisting of blood, tears, urine, saliva, gastrointestinal fluids, spinal

3   fluid, amniotic fluid, bone marrow, bacteria, viruses, cells in culture, biopsy tissue, plant tissue

4   or fluids and insect tissue or fluids.

1   60 (previously presented): The method of claim 49, wherein the analyte

2   comprises a protein.

1   61 (previously presented): The method of claim 49, wherein the analyte

2   comprises a nucleic acid.

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1   62 (previously presented): The method of claim 61, wherein the nucleic acid is
2   DNA.

1   63 (previously presented): A mass spectrometry apparatus comprising:
2   (a)   a probe comprising:
3   i.   a sample presenting surface;
4   ii.   energy absorbing molecules immobilized by chemical bonding to
5   the sample presenting surface;
6   iii. an affinity reagent capable of binding an analyte immobilized by
7   chemical bonding to the sample presenting surface; and
8   iv.   an analyte that is not dispersed in a matrix crystalline structure, but
9   is presented within, on or above the energy absorbing molecules,
10   wherein the energy absorbing molecules are different from the
11   affinity reagent;
12   (b)   an energy source that directs laser energy to the sample presenting surface
13   for desorbing and ionizing the analyte;
14   (c)   a detector that detects the desorbed, ionized analyte
15   (d)   a spectrometer tube into which ionized analyte is accelerated;
16   (e)   means for applying an accelerating electrical potential to the desorbed,
17   ionized analyte; wherein the mass spectrometer is a time-of-flight mass
18   spectrometer; and
19   (f)   vacuum means for applying a vacuum to the interior of the tube.

1   64 (currently amended): The ~~probe~~ apparatus of claim 63, wherein the sample
2   presenting surface does not have additional matrix molecules.

1   65 (previously presented): The apparatus of claim 63, wherein the detector
2   comprises an electron multiplier.

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1   66 (previously presented): The apparatus of claim 63, wherein the energy source
2   is energy from a nitrogen laser or an Nd-YAG laser.

1   67 (previously presented): The apparatus of claim 63, wherein the energy
2   absorbing molecules are noncovalently bound to the sample presenting surface.

1   68 (previously presented): The apparatus of claim 63, wherein the energy
2   absorbing molecules are covalently bound to the sample presenting surface.

1   69 (previously presented): The apparatus of claim 63, wherein the energy
2   absorbing molecules are selected from the group consisting of dimethoxy hydroxycinnamic acid,
3   cinnamamide, cinnamyl bromide, dihydroxybenzoic acid, and cyanohydroxycinnamic acid.

1   70. (previously presented): The apparatus of claim 63, wherein the affinity
2   reagent is noncovalently bound to the sample presenting surface.

1   71. (previously presented): The apparatus of claim 63, wherein the affinity
2   reagent is covalently bound to the sample presenting surface.

1   72. (previously presented): The apparatus of claim 63, wherein the affinity
2   reagent is selected from the group consisting of a metal ion, a protein, a peptide, a nucleic acid
3   and a dye.

1   73. (previously presented): The apparatus of claim 72, wherein the affinity
2   reagent comprises a metal ion.

1   74. (previously presented): The apparatus of claim 73, wherein the metal ion is
2   selected from copper or iron.

1   75. (previously presented): The apparatus of claim 72, wherein the affinity
2   reagent comprises a protein or peptide.

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1   76 (previously presented): The apparatus of claim 75, wherein the protein or

2   peptide is an immunoglobulin.

1   77 (previously presented): The apparatus of claim 72, wherein the affinity

2   reagent comprises a nucleic acid.

1   78 (previously presented): The apparatus of claim 77, wherein the nucleic acid is

2   DNA.

1   79 (previously presented): The apparatus of claim 63, wherein the analyte

2   comprises a protein.

1   80 (previously presented): The apparatus of claim 63, wherein the analyte

2   comprises a nucleic acid.

1   81 (previously presented): The apparatus of claim 80, wherein the nucleic acid is

2   DNA.